

Figure 1A

1 CATATTGCCAACTGAACCTCTCTGTTTTCTTGCAAGATGAAAGGAGACAACCATGAATG 60
 1 M N E 3
 61 AGCCACTAGACTATTTAGCAAATGCTTCTGATTTCCCCGATTATGCAGCTGCTTTTGGAA 120
 4 P L D Y L A N A S D F P D Y A A A F G N 23
 121 ATTGCACTGATGAAAACATCCCACTCAAGATGCACTACCTCCCTGTATTATTTATGGCATTA 180
 24 C T D E N I P L K M H Y L P V I Y G I I 43
 181 TCTTCCTCGTGGGATTTCCAGGCAATGCAGTAGTGATATCCACTTACATTTTCAAATGA 240
 44 F L V G F P G N A V V I S T Y I F K M R 63
 241 GACCTTGAAGAGCAGCACCATCATTATGCTGAACCTGGCCTGCACAGATCTGCTGTATC 300
 64 P W K S S T I I M L N L A C T D L L Y L 83
 301 TGACCAGCCTCCCCTTCTGATTCACCTACTATGCCAGTGGCGAAAACCTGGATCTTTGGAG 360
 84 T S L P F L I H Y Y A S G E N W I F G D 103
 361 ATTCATGTGTAAGTTTATCCGCTTCAGCTTCCATTTCAACCTGTATAGCAGCATCCTCT 420
 104 F M C K F I R F S F H F N L Y S S I L F 123
 421 TCCTCACCTGTTTCAGCATCTTCCGCTACTGTGTGATCATTCACCCAATGAGCTGCTTTT 480
 124 L T C F S I F R Y C V I I H P M S C F S 143
 481 CCATTACAAAACCTCGATGTCAGTTGTAGCCTGTGCTGTGGTGTGGATCATTTCACTGG 540
 144 I H K T R C A V V A C A V V W I I S L V 163
 541 TAGCTGTCAATCCGATGACCTTCTTGATCACATCAACCAACAGGACCAACAGATCAGCCT 600
 164 A V I P M T F L I T S T N R T N R S A C 183
 601 GTCTCGACCTCACCAGTTCGGATGAACTCAATACTATTAAGTGGTACAACCTGATTTTGA 660
 184 L D L T S S D E L N T I K W Y N L I L T 203
 661 CTGCAACTACTTTCTGCCTCCCCTTGGTGATAGTGACACTTTGCTATACCACGATTATCC 720
 204 A T T F L P L V I V T L C Y T T I I H 223
 721 ACACTCTGACCCATGGACTGCAAACCTGACAGCTGCCTTAAGCAGAAAGCACGAAGGCTAA 780
 224 T L T H G L Q T D S C L K Q K A R R L T 243
 781 CCATTCTGCTACTCCTTGCAATTTACGTATGTTTTTTACCCTTCCATATCTTGAGGGTCA 840
 244 I L L L L A F Y V F L P F H I L R V I 263

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Figure 1B

841	TTCGGATCGAATCTCGCCTGCTTTCAATCAGTTGTTCCATTGAGAATCAGATCCATGAAG	900
264	R I E S R L L S I S C S I E N Q I H E A	283
901	CTTACATCGTTTCTAGACCATTAGCTGCTCTGAACACCTTTGGTAACCTGTTACTATATG	960
284	Y I <u>V S R P L A A L N T F G N L L L Y V</u>	303
961	TGGTGGTCAGCGACAACCTTTCAGCAGGCTGTCTGCTCAACAGTGAGATGCAAAGTAAGCG	1020
304	<u>V V</u> S D N F Q Q A V C S T V R C K V S G	323
1021	GGAACCTTGAGCAAGCAAAGAAAATTAGTTACTCAAACAACCCTTGAAATATTTTCATTTA	1080
324	N L E Q A K K I S Y S N N P	337
1081	C	1081

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Figure 2A

P2YR_CHICK MTEALISAALNCTQPELLAG.G..W.....AAGNATTCISLTKTGFQ
 P2YR_MELGA MTEALISAALNCTQPELLAG.G..W.....AAGNATTCISLTKTGFQ
 P2YR_MOUSE MTEVPWSVVPNCIDAAFLAGLGSLWGNSTVAATAAVSSSFQCALTKTGFQ
 P2YR_RAT MTEVPWSAVPNCIDAAFLAGLGSLWGNSTIAATAAVSSSFQCALIKTGFQ
 P2YR_BOVIN MTEVLWPAVPNCIDTAFLADPGSPWGNSTVTATAAVASPFQCALTKTGFQ
 P2YR_HUMAN MTEVLWPAVPNCIDAAFLAGPGSSWGNSTVAATAAVSSSFQCALTKTGFQ
 O35811 ~~~~~MTSAESLFTS.LGP.SPSSGDG.....DCRFNE.EFK
 P2Y4_HUMAN ~~~~~MSTESSLLRS.LGL.SPGPCSEVEL...DCWFDE.DFK
 O57466 ~~~~~MDAPVRMFGSLAPWTP.P.TP.LGGNTIAAAEA...KCVFNE.EFK
 P2Y8_XENLA ~~~~~MTEDIMATGYPTFLTPYLPKLLMNLNDTED...ICVFDE.GFK
 P2UR_RAT ~~~~~AAGLDSTNSTINCWEDELGYKCRFNE.DFK
 P2Y3_CHICK ~~~~~MSMANFTGGRNSCTFHE.EFK
 HGPRBMY23 ~~~~~MNEPLDLANASDFPDYAAAFGNCIDENIPLK

P2YR_CHICK FYYLPTVYIVFETGFLGNSVAI..W.FVFHMRPWSCI.VYMFNLALADEFL
 P2YR_MELGA FYYLPTVYIVFETGFLGNSVAI..W.FVFHMRPWSCI.VYMFNLALADEFL
 P2YR_MOUSE FYYLPAVYIVFETGFLGNSVAI..W.FVFHMRPWSCI.VYMFNLALADEFL
 P2YR_RAT FYYLPAVYIVFETGFLGNSVAI..W.FVFHMRPWSCI.VYMFNLALADEFL
 P2YR_BOVIN FYYLPAVYIVFETGFLGNSVAI..W.FVFHMRPWSCI.VYMFNLALADEFL
 P2YR_HUMAN FYYLPAVYIVFETGFLGNSVAI..W.FVFHMRPWSCI.VYMFNLALADEFL
 O35811 FILLPNSYAVVFETGLALNAPT..W.FVFHMRPWSCI.VYMFHLALSDTL
 P2Y4_HUMAN FILLPNSYAVVFETGLALNAPT..W.FVFHMRPWSCI.VYMFHLALSDTL
 O57466 FILLPNSYAVVFETGLPLNSVAI..W.FVFHMRPWSCI.VYMFNLALSDTL
 P2Y8_XENLA FILLPNSYAVVFETGLPLNIAAI..W.FVFHMRPWSCI.VYMFNLALSDTL
 P2UR_RAT FVLLPNSYGVVETGLCLNVVAI..W.FVFHMRPWSCI.VYMFHLALSDSL
 P2Y3_CHICK QVLLPNSYGVVETGLPLNAVVGQVAA..W.FVFHMRPWSCI.VYMFNLALADLL
 HGPRBMY23 MHYLPNSYGVVETGLGPGNAVVIS..W.FVFHMRPWSCI.VYMFNLALACTLL

P2YR_CHICK YVLALPALIYYFNKTDWIFGDMCKLORF.FHVNLYGSILFLTCISVHR
 P2YR_MELGA YVLALPALIYYFNKTDWIFGDMCKLORF.FHVNLYGSILFLTCISVHR
 P2YR_MOUSE YVLALPALIYYFNKTDWIFGDAMCKLORF.FHVNLYGSILFLTCISAHR
 P2YR_RAT YVLALPALIYYFNKTDWIFGDMCKLORF.FHVNLYGSILFLTCISAHR
 P2YR_BOVIN YVLALPALIYYFNKTDWIFGDAMCKLORF.FHVNLYGSILFLTCISAHR
 P2YR_HUMAN YVLALPALIYYFNKTDWIFGDAMCKLORF.FHVNLYGSILFLTCISAHR
 O35811 YVLSLPTLIYYAAHNHPEFGTECKFREF.FYWNLYCSILFLTCISVHR
 P2Y4_HUMAN YVLSLPTLIYYAAHNHPEFGTECKFREF.FYWNLYCSILFLTCISVHR
 O57466 YVLSLPTLIYYADKNNHPEFGTECKFREF.FYANLYSSILFLTCISVHR
 P2Y8_XENLA YVLSLPTLIYYADKNNHPEFGTECKFREF.FYANLYSSILFLTCISVHR
 P2UR_RAT YVLSLPTLIYYADKNNHPEFGTECKFREF.FYTNLYCSILFLTCISVHR
 P2Y3_CHICK YVLSLPTLIYYADKNNHPEFGTECKFREF.FYTNLYCSILFLTCISVHR
 HGPRBMY23 YVLSLPTLIYYASGENWIFGDMCKLORF.FHVNLYGSILFLTCISVHR

P2YR_CHICK YTGVPHPISLGRK.KKNAYVSSLVWLVVAV.IAPLFSGTGVRN
 P2YR_MELGA YTGVPHPISLGRK.KKNAYVSSLVWLVVAV.IAPLFSGTGVRN
 P2YR_MOUSE YSGVVPPLSLGRK.KKNAYVSSLVWLVVAV.IAPLFSGTGVRN
 P2YR_RAT YSGVVPPLSLGRK.KKNAYVSSLVWLVVAV.IAPLFSGTGVRN
 P2YR_BOVIN YSGVVPPLSLGRK.KKNAYVSSLVWLVVAV.IAPLFSGTGVRN
 P2YR_HUMAN YSGVVPPLSLGRK.KKNAYVSSLVWLVVAV.IAPLFSGTGVRN
 O35811 YLGCCHPLRALRWGR.PRIAGLCAVW.VVACCTVPNLFEVITSNIGT
 P2Y4_HUMAN YLGCCHPLRALRWGR.PRIAGLCAVW.VVACCTVPNLFEVITSNIGT
 O57466 YLGCCHPLRALRWGR.PRIAGLCAVW.VVACCTVPNLFEVITSNIGT
 P2Y8_XENLA YRGVCHPETSLSRGRN.AKHAYVCAVW.VVACCTVPNLFEVITSNIGT
 P2UR_RAT YLGCCHPLRALRWGR.PRIAGLCAVW.VVACCTVPNLFEVITSNIGT
 P2Y3_CHICK YLGCCHPLRALRWGR.PRIAGLCAVW.VVACCTVPNLFEVITSNIGT
 HGPRBMY23 YLGCCHPLRALRWGR.PRIAGLCAVW.VVACCTVPNLFEVITSNIGT

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Figure 2B

P2YR_CHICK TITCYDTTADEYLRSYFVYSNCTTVFVFCPEFVILGCGYGLIVRALIYK
 P2YR_MELGA TITCYDTTADEYLRSYFVYSNCTTVFVFCPEFVILGCGYGLIVRALIYK
 P2YR_MOUSE TITCYDTTSMYLRSYFIYSNCTTVAFVFCPEFVILGCGYGLIVRALIYN
 P2YR_RAT TITCYDTSDEYLRSYFIYSNCTTVAFVFCPEFVILGCGYGLIVRALIYK
 P2YR_BOVIN TITCYDTSDEYLRSYFIYSNCTTVAFVFCPEFVILGCGYGLIVRALIYK
 P2YR_HUMAN TITCYDTSDEYLRSYFIYSNCTTVAFVFCPEFVILGCGYGLIVRALIYK
 O35811 TITCHDITTFEEDFDHYVYSSAMVLEFGPEFTLVVCYGLMARRLYR.
 P2Y4_HUMAN TVTCHDITTRPEFDHYVHSSAMGLEFGPEFTLVVCYGLMARRLYQ.
 O57466 STTCHDITTKPEFDHYVHYSSAMALEFGPEFTLVVCYGLMARRLCKE
 P2Y8_XENLA NITCHDITTRPEDFARYVEYSTAMCLEFGPEFTLVVCYGLMARRLCKE
 P2UR_RAT TITCHDTSARELFSHVAVSSVVLGLTAVPEFTLVVCYGLMARRLCKE
 P2Y3_CHICK RTVTCYDLSPPRSTSYFPGTITTTTGTGLPFAAILACVCSMARILCO
 HGPRBMY23 TGAACLDLTSSELNLIKWYNITATTECPLEVTLCYTTLHTLTH.

P2YR_CHICK DITN....SELRRKSIYLIIVLTVFVAVSPFHVKTNLRLRDLDFOT
 P2YR_MELGA DITN....SELRRKSIYLIIVLTVFVAVSPFHVKTNLRLRDLDFOT
 P2YR_MOUSE DITN....SELRRKSIYLIIVLTVFVAVSPFHVKTNLRLRDLDFOT
 P2YR_RAT DITN....SELRRKSIYLIIVLTVFVAVSPFHVKTNLRLRDLDFOT
 P2YR_BOVIN DITN....SELRRKSIYLIIVLTVFVAVSPFHVKTNLRLRDLDFOT
 P2YR_HUMAN DITN....SELRRKSIYLIIVLTVFVAVSPFHVKTNLRLRDLDFOT
 O35811 ..PLPGAGQSSRLSINTHIVLTVFVAVCFPFHVTITYYQAR.LLEA
 P2Y4_HUMAN ..PLPGSAQSSRLSINTHIVLTVFVAVCFPFHVTITYYLLAR.LLEA
 O57466 SFPPSPRPRVPSYKSTHIVLTVFVAVCFPFHVTITYYTSR.YFOA
 P2Y8_XENLA ISGNQQTLPSPYKSTHIVLTVFVAVCFPFHVTITYYYSR.LLGI
 P2UR_RAT AYGTG..LPRAARRKSTHIVLTVFVAVCFPFHVTITYYSFR.SLDL
 P2Y3_CHICK D..LIGLAVHKKKDKAMSTHIVLTVFVAVCFPFHVTITYYLVSSASL
 HGPRBMY23GLQTDSCLEOKARLTITALLAFVCFPFHVTITYYVRESRL...L

P2YR_CHICK POMCAFNDKVYATYQVTRGLASLNSCDPILYFLAGDT...FRRRLSRAT
 P2YR_MELGA POMCAFNDKVYATYQVTRGLASLNSCDPILYFLAGDT...FRRRLSRAT
 P2YR_MOUSE PEMCDFNDRVYATYQVTRGLASLNSCDPILYFLAGDT...FRRRLSRAT
 P2YR_RAT PEMCDFNDRVYATYQVTRGLASLNSCDPILYFLAGDT...FRRRLSRAT
 P2YR_BOVIN PEMCAFNDKVYATYQVTRGLASLNSCDPILYFLAGDT...FRRRLSRAT
 P2YR_HUMAN POMCAFNDKVYATYQVTRGLASLNSCDPILYFLAGDT...FRRRLSRAT
 O35811 D..CHVLITVNVVYKVTRPLASANSCHDPLYLFTGD...KRNQLQQLC
 P2Y4_HUMAN D..CRVLITVNVVYKVTRPLASANSCHDPLYLITGD...KREQLRQLC
 O57466 D..COTLITVNVYKVTRPLASANSCHDPLYLFTGD...KRGRLR...
 P2Y8_XENLA K..CYALVITVNVYKVTRPLASANSCHDPLYLFLAND...RFRRLRITV
 P2UR_RAT S..CHTLNAINMAYKVTRPLASANSCHDPLYLFLAGQRLVRFADAKPAT
 P2Y3_CHICK E..CPTLCAFAIAYKCTREFASLNSVDPILYFT...QRKFRESTRYLIL
 HGPRBMY23 SISCSIEHQHEAYITRPLAALNIFGNLILYVVSINPQQAVCSTVRCK

P2YR_CHICK RKSS.....RRSEPNVQSSEMTLNLTEYKQNGDSI~~~~~
 P2YR_MELGA RKSS.....RRSEPNVQSSEMTLNLTEYKQNGDSI~~~~~
 P2YR_MOUSE RKAS.....RRSEANLQSSEMTLNLSEFKQNGDSI~~~~~
 P2YR_RAT RKAS.....RRSEANLQSSEMTLNLSEFKQNGDSI~~~~~
 P2YR_BOVIN RKAS.....RRSEANLQSSEMTLNLSEFKQNGDSI~~~~~
 P2YR_HUMAN RKAS.....RRSEANLQSSEMTLNLSEFKQNGDSI~~~~~
 O35811 ..RGSKPK.....PRTAA...SS.LALVTLHEHISRWADTHQDSTF
 P2Y4_HUMAN ..GGGKPQ.....PRTAA...SS.LALVSLPECSRWAATPDSSC
 O57466 ..RGAAQR.....PRPVP...TS.LALVSPSVDSSVGSCCNSESERG
 P2Y8_XENLA RRRSSVPNRRCMHTHPOTEPHMTAGLPVIS.AEIPSNNGSMV.RDENG
 P2UR_RAT EPTSPQARRRLGLHRPNITIRKRD...LSISSDERRTESTPAGSET
 P2Y3_CHICK DKMSKWRQDHCISYGS~~~~~
 HGPRBMY23 VSGNLEQAKKISYNNP~~~~~

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Figure 2C

P2YR_CHICK ~~~~~
P2YR_MELGA ~~~~~
P2YR_MOUSE ~~~~~
P2YR_RAT ~~~~~
P2YR_BOVIN ~~~~~
P2YR_HUMAN ~~~~~
O35811 SAYEGDRL ~~~~~
P2Y4_HUMAN STPRADRL ~~~~~
O57466 MGTVWSRGGQ ~~~~~
P2Y8_XENLA EGSREHRVEWTDTKKEINQMMNRRSTIKRNSTDKNMDKENRHGENYLPYVE
P2UR_RAT KDIRL ~~~~~
P2Y3_CHICK ~~~~~
HGPRBMY23 ~~~~~

P2YR_CHICK ~~~~~
P2YR_MELGA ~~~~~
P2YR_MOUSE ~~~~~
P2YR_RAT ~~~~~
P2YR_BOVIN ~~~~~
P2YR_HUMAN ~~~~~
O35811 ~~~~~
P2Y4_HUMAN ~~~~~
O57466 ~~~~~
P2Y8_XENLA VVEKEDYETKRENKTTTEQSSKTNAEQDELOTQIDSRLKRGKWQLSSKKG
P2UR_RAT ~~~~~
P2Y3_CHICK ~~~~~
HGPRBMY23 ~~~~~

P2YR_CHICK ~~~~~
P2YR_MELGA ~~~~~
P2YR_MOUSE ~~~~~
P2YR_RAT ~~~~~
P2YR_BOVIN ~~~~~
P2YR_HUMAN ~~~~~
O35811 ~~~~~
P2Y4_HUMAN ~~~~~
O57466 ~~~~~
P2Y8_XENLA AAQENEKGHMEPSFEGETSTWNLLTPKMYGKKDRLAKNVEEVGYGKEKE
P2UR_RAT ~~~~~
P2Y3_CHICK ~~~~~
HGPRBMY23 ~~~~~

P2YR_CHICK ~~~~~
P2YR_MELGA ~~~~~
P2YR_MOUSE ~~~~~
P2YR_RAT ~~~~~
P2YR_BOVIN ~~~~~
P2YR_HUMAN ~~~~~
O35811 ~~~~~
P2Y4_HUMAN ~~~~~
O57466 ~~~~~
P2Y8_XENLA LQNFPA
P2UR_RAT ~~~~~
P2Y3_CHICK ~~~~~
HGPRBMY23 ~~~~~

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Figure 3

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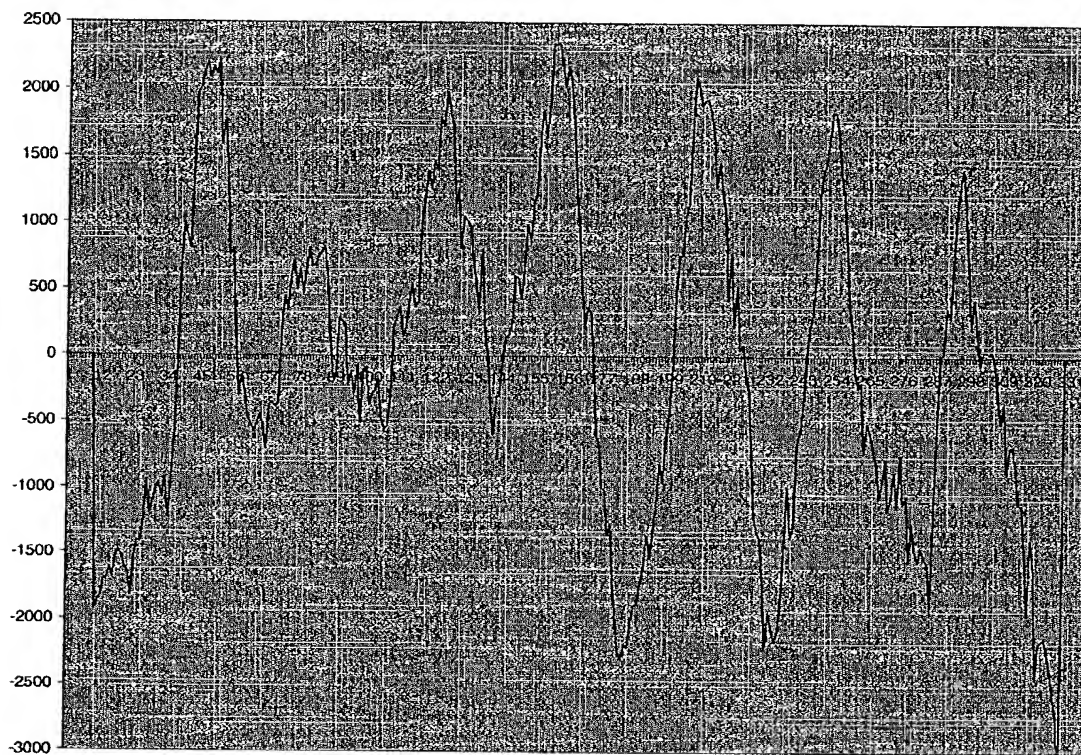
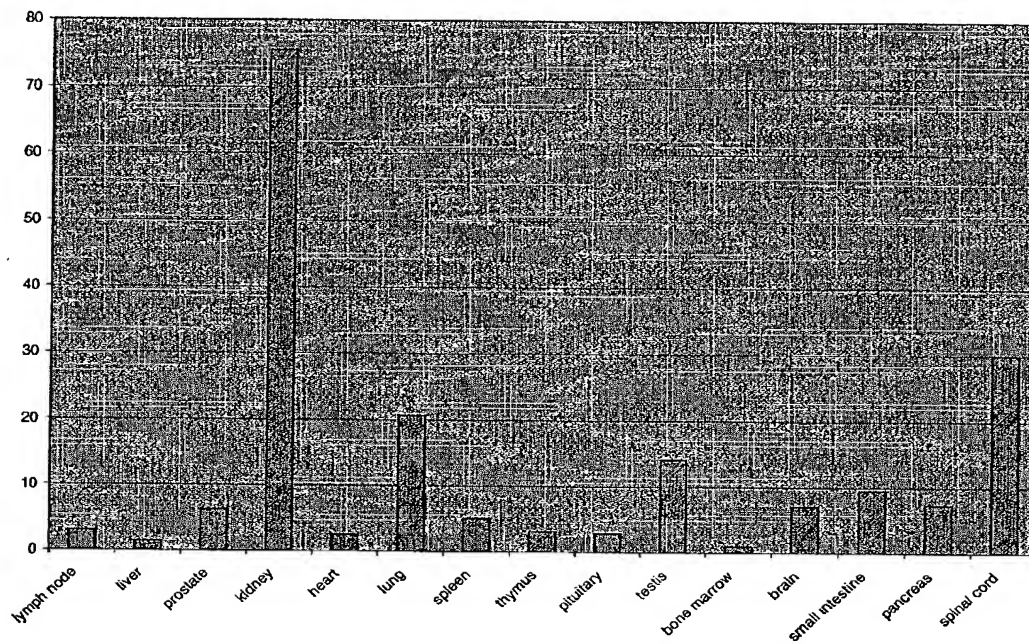


Figure 4



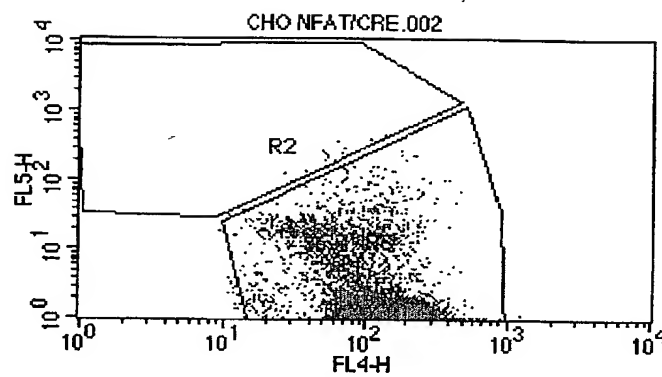
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Figure 5.

<u>Protein</u>	<u>SWISS-PROT ACCESSION No</u>	<u>Identities</u>	<u>Similarities</u>
Chick purinergic receptor	P34996	36%	46%
Turkey purinergic receptor	P49652	36%	46%
Mouse purinergic receptor	P49650	36%	45%
Rat purinergic receptor	P49651	36%	45%
Bovine purinergic receptor	P48042	35%	46%
African clawed frog P2Y purinoceptor 8	P79918	35%	46%
Chick P2Ypurinoceptor 3	Q98907	35%	45%
Human purinergic receptor	P47900	34%	45%
Turkey G-protein coupled P2Y nucleotide receptor	O57466	34%	44%
Human uridine nucleotide receptor	P51582	32%	40%
Rat G-protein coupled receptor	O35811	31%	41%
Rat P2U purinergic receptor	P41242	30%	40%

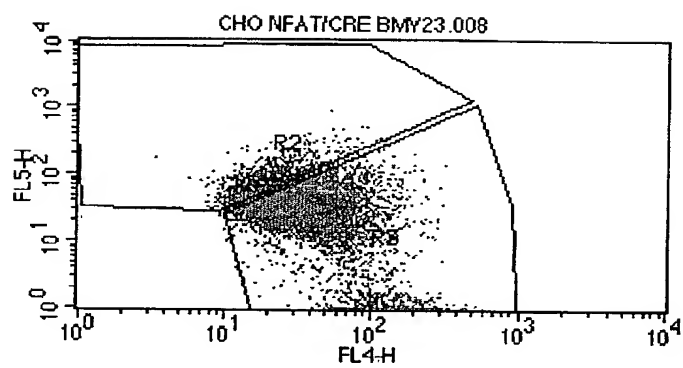
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Figure 6.



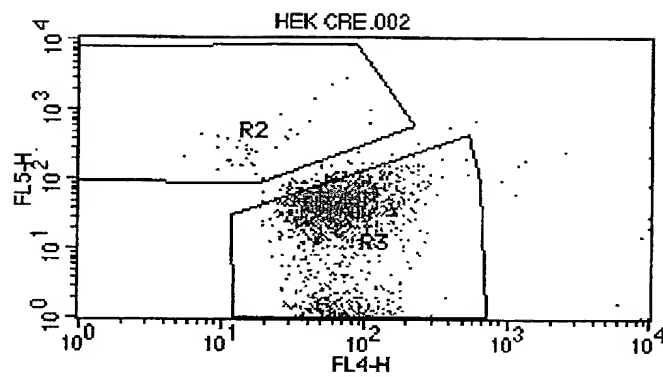
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Figure 7.



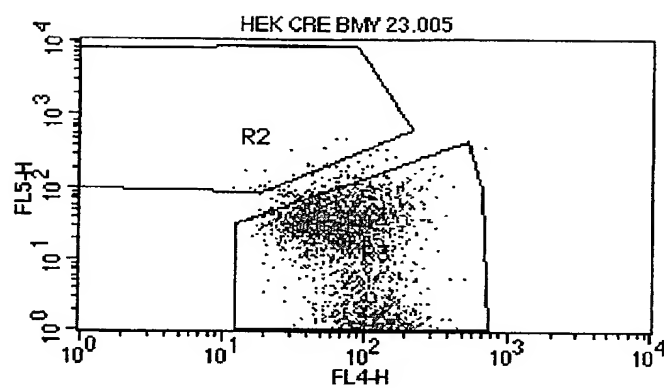
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Figure 8.



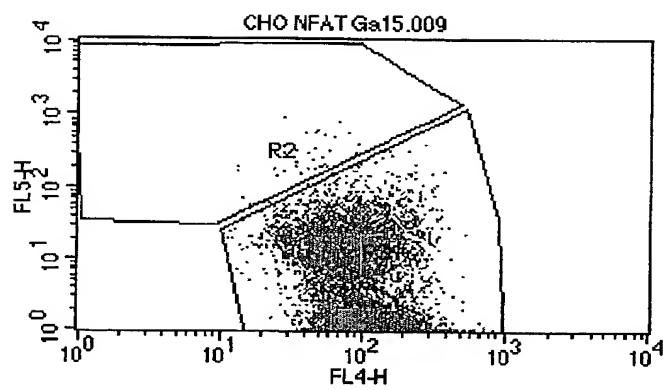
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Figure 9.



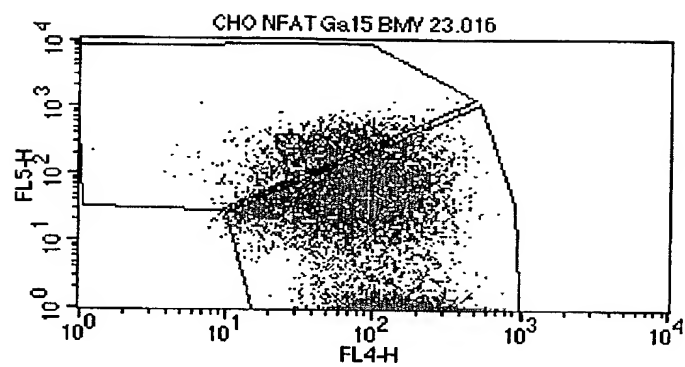
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Figure 10.



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Figure 11.

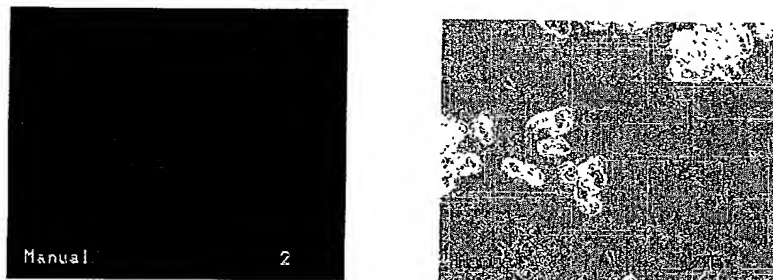


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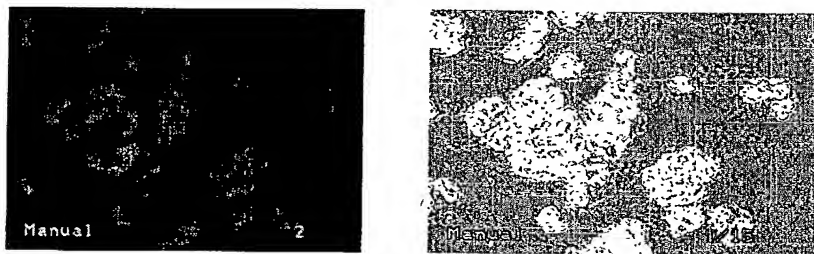
D0077 NP

Figure 12.

Cho NFAT Gal5 Control (Fluorescent vs. Bright Field)



Cho NFAT Gal5 BMY23 (Fluorescent vs. Bright Field)



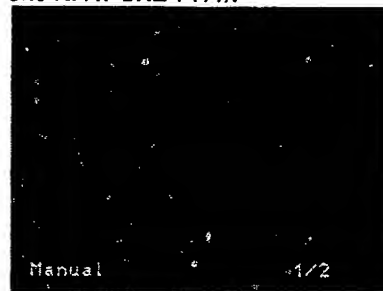
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Figure 13.

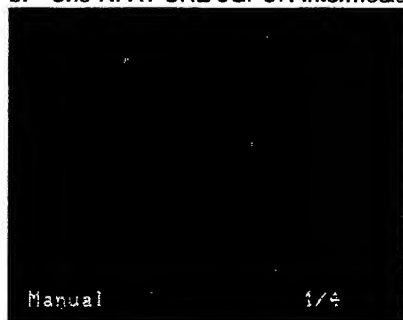
a. Cho-NFAT CRE



b. Cho-NFAT CRE + F/T/P



b. Cho-NFAT CRE oGPCR-Intermediate



d. Cho-NFAT CRE oGPCR High



10030558 "120701